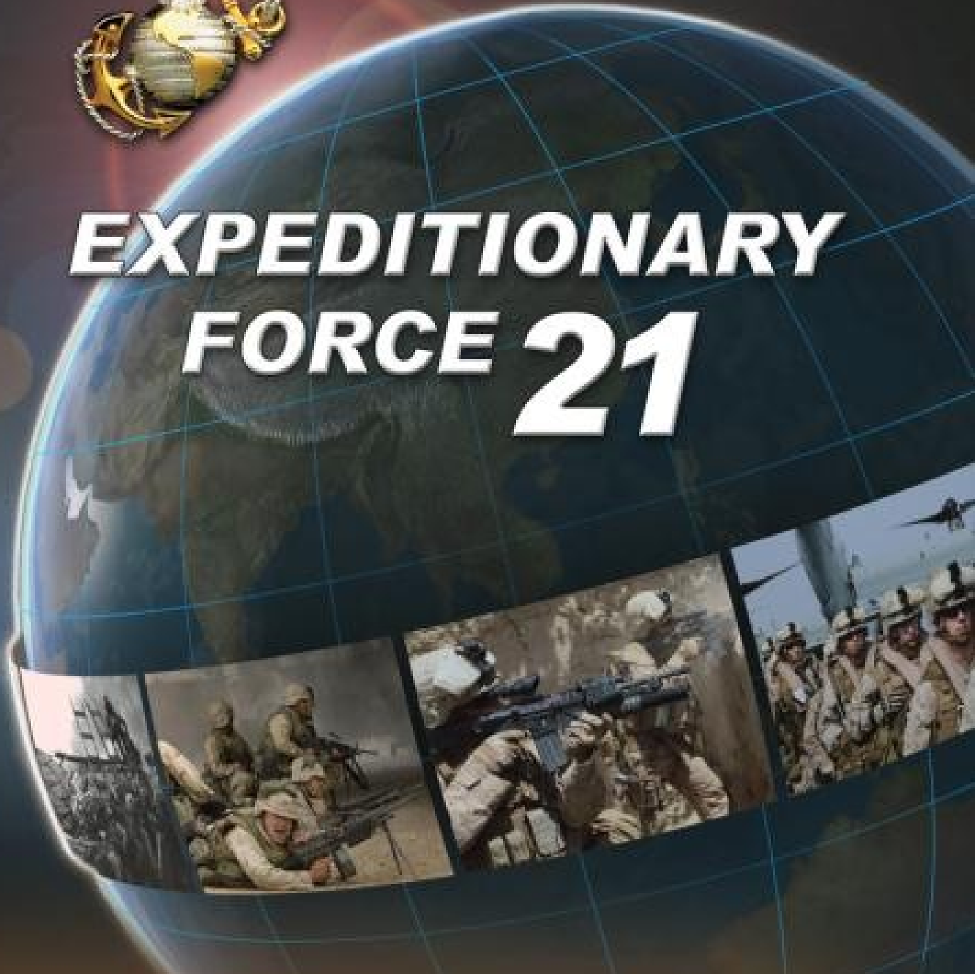
NAME OF EVENT

Insert Agenda Here

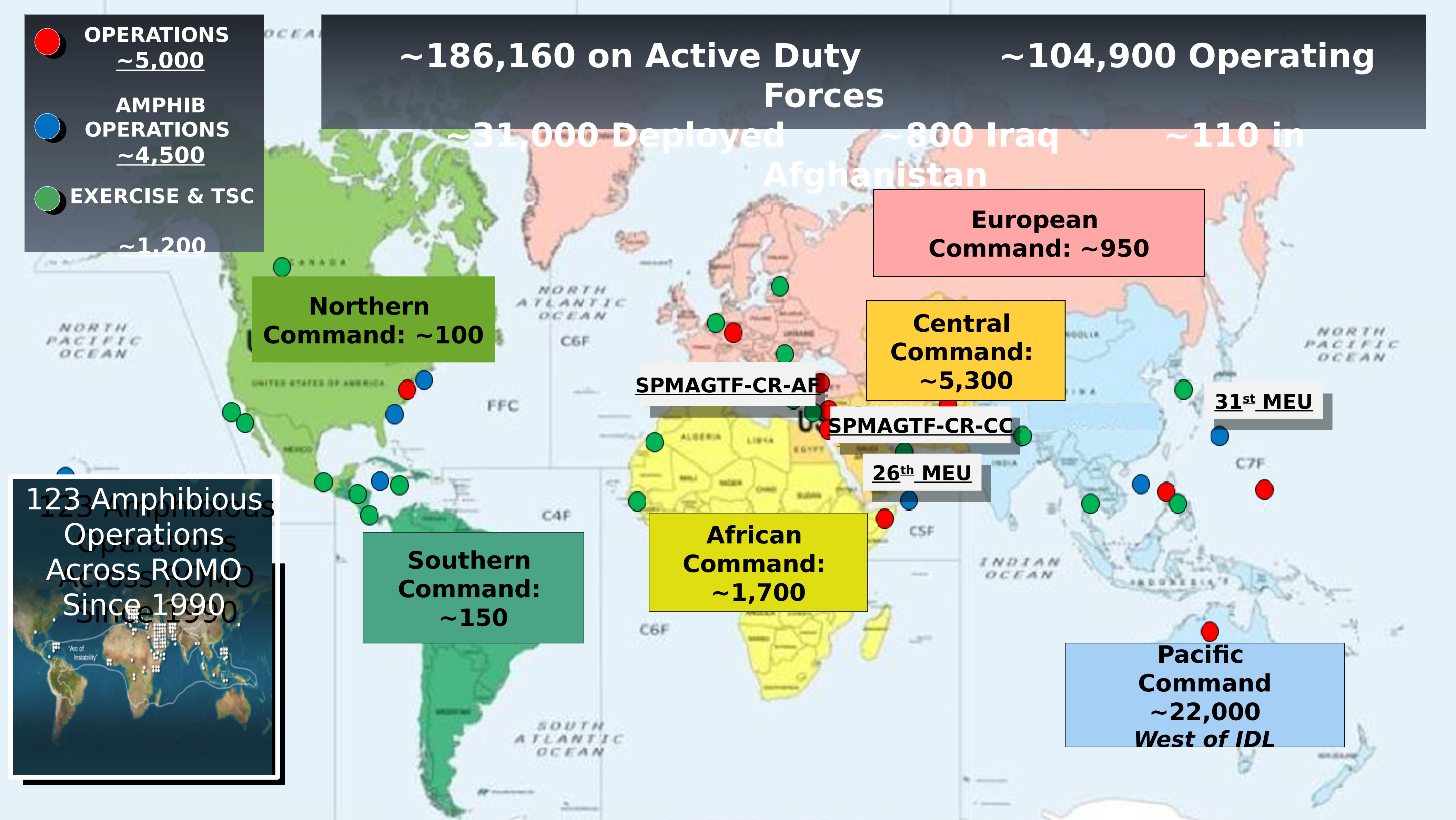

EXPEDITIONARY
FORCE 21

FORWARD and READY:
Now and in the Future

Name of Briefer : (Col Turner)
Title: Director, Capabilities
Development Directorate,
Combat Development and Integration

Current Disposition

As of Jan 21, 2016



🔴 OPERATIONS ~5,000

🔵 AMPHIB OPERATIONS ~4,500

🟢 EXERCISE & TSC ~1,200

~186,160 on Active Duty ~104,900 Operating Forces

~31,000 Deployed ~800 Iraq ~110 in Afghanistan

European Command: ~950

Central Command: ~5,300

Northern Command: ~100

Southern Command: ~150

African Command: ~1,700

Pacific Command ~22,000 *West of IDL*

SPMAGTF-CR-AF

SPMAGTF-CR-CC

26th MEU

31st MEU

123 Amphibious Operations Across ROMO Since 1990

123 Amphibious Operations Across ROMO Since 1990

NORTH PACIFIC OCEAN
NORTH ATLANTIC OCEAN
NORTH PACIFIC OCEAN
CANADA
UNITED STATES OF AMERICA
MEXICO
C6F
FFC
C4F
C6F
C5F
C7F
ALGERIA
LIBYA
EGYPT
MALI
NIGER
CHAD
SUDAN
INDIA
INDIAN OCEAN
INDONESIA
SOUTH ATLANTIC OCEAN
SOUTHERN OCEAN
"Arc of Instability"

"As the Nation's crisis response force and force in readiness, Marines remain forward deployed, ready to fight and win tonight"

– Gen. Robert B. Neller, Commandant of The Marine Corps

United States Marine Corps

Roles and Missions

Marine Corps, within the Department of the Navy, is directed in Federal law and further detailed in Department of Defense policy to develop concepts, doctrine, tactics, techniques, and procedures and organize, train, equip, and provide forces, normally employed as combined arms air ground task forces, to serve as an expeditionary force-in-readiness, and perform the following specific functions:

- Seize and defend advanced naval bases or lodgments to facilitate subsequent joint operations.
- Provide close air support for ground forces.
- Conduct land and air operations essential to the prosecution of a naval campaign.
- Conduct expeditionary operations in the urban littorals and other challenging environments.
- Conduct amphibious operations, including engagement, crisis response, and power projection operations, to assure access. The Marine Corps has primary responsibility for the development of amphibious doctrine, tactics, techniques, and equipment.
- Conduct security and stability operations and assist the initial establishment of a military government, pending transfer of this responsibility to another authority. Provide security detachments and units for service on armed vessels of the Navy, protection of naval property at naval stations and bases, and security at designated US embassies and consulates.
- Perform other duties as the President or the Secretary of Defense may direct. These additional duties may not detract from or interfere with the operations for which the Marine Corps is primarily organized.

United States Marine Corps
Enduring Principles

- Marines are focused on combat; every Marine is a rifleman.
- Marines are ready, relevant, and forward deployed.
- Marines are innovative, adaptable, and versatile; Marines win.
- Marines do what is right for the Nation.
- Marines keep their honor clean.
- Marines take care of their own.
- The Marine Corps is a naval expeditionary force.
- The Marine Corps is an integrated combined arms organization of complementary air, ground, and logistics components.
- The Marine Corps is a good steward of the Nation's resources

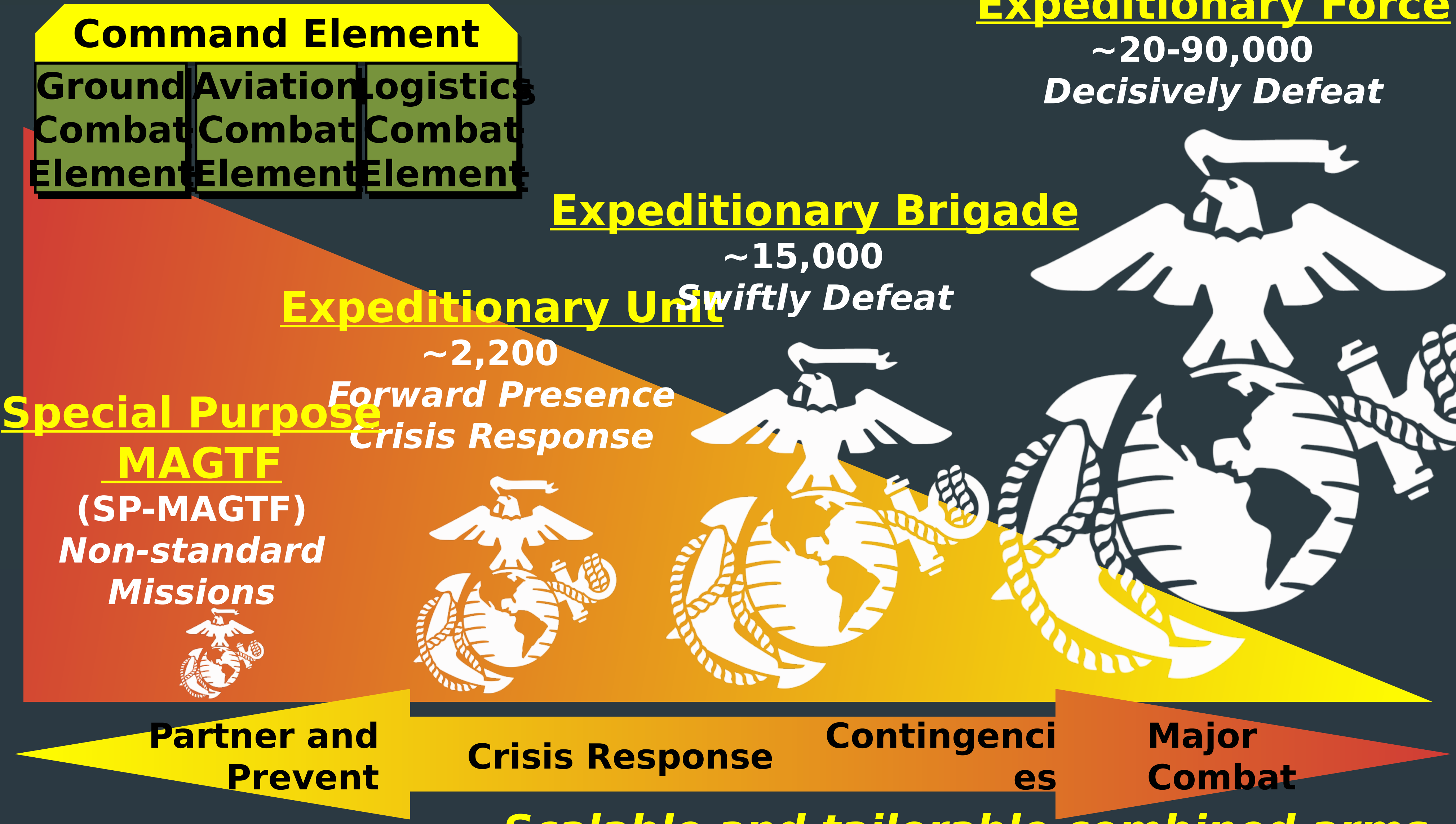
History of the Corps

- **Established 10 November 1775**
- **Naval Service (1775-1900)**
  - Ships detachments, navy yard barracks, provisional forces for expeditionary service ashore
- **Small Wars (1900-1940 and presently)**
  - Irregular warfare and counter-insurgency
  - State Department troops
- **Conventional Wars (1916 – 1991)**
  - WWI, WWII, Korea, Desert Storm
- **Hybrid Wars (1965, 2001, 2003, and presently)**
  - Vietnam, Afghanistan, Iraq
- **America’s 911 Force (1986 – present)**
  - Amphibious, expeditionary, air-ground-logistics task force

Marine Training

- **All Marines receive basic infantry training**
  - Marine Officers are trained to serve as platoon commanders
  - Enlisted Marines receive Marine Corps Combat Skills training
- **Marine Philosophy: “Centralized planning, decentralized execution”**
- **Commanders intent allows for flexibility of execution**
- **Delegate responsibility to the lowest**

Marine Air-Ground Task Force



Command Element

Ground Combat Element	Aviation Combat Element	Logistics Combat Element

Special Purpose MAGTF
(SP-MAGTF)
Non-standard Missions

Expeditionary Unit
~2,200
Forward Presence
Crisis Response

Expeditionary Brigade
~15,000
Swiftly Defeat

Expeditionary Force
~20-90,000
Decisively Defeat

Partner and Prevent

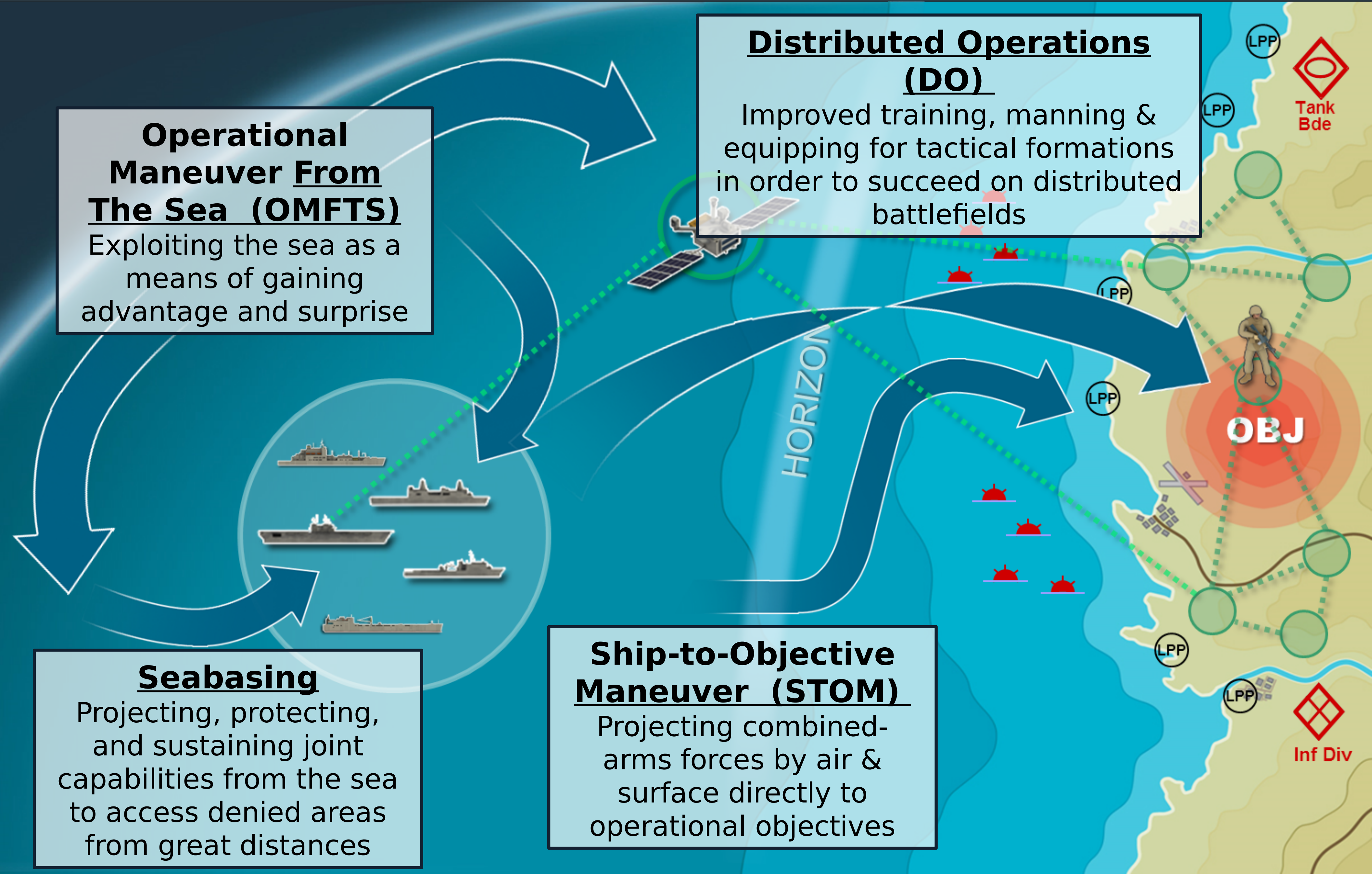
Crisis Response

Contingencies

Major Combat

Scalable and tailorable combined arms teams

Operating Concepts



Operational Maneuver From The Sea (OMFTS)

Exploiting the sea as a means of gaining advantage and surprise

Distributed Operations (DO)

Improved training, manning & equipping for tactical formations in order to succeed on distributed battlefields

Seabasing

Projecting, protecting, and sustaining joint capabilities from the sea to access denied areas from great distances

Ship-to-Objective Maneuver (STOM)

Projecting combined-arms forces by air & surface directly to operational objectives

Future Operating Environment: Drivers of Change & Warfighting Challenges

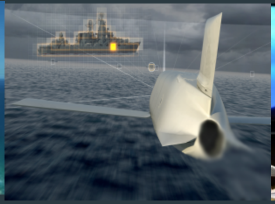
2015 MARINE CORPS SECURITY ENVIRONMENT FORECAST

Marine Corps Futures Directorate, in its 2015 Security Environment Forecast (MCSEF)

- ***Global Patterns and Trends***
- ***Regional Specifics:***

Key Drivers of Change

Urbanized Littorals



Technology Proliferation

Information Is a Weapon

Signature Is a Vulnerability

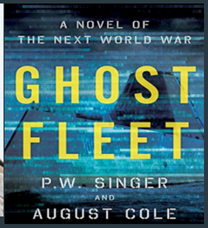
Changing Characteristics of War

China
Russia
North Korea
Sea of Japan (East Sea)
Yellow Sea
South Korea
Japan

Primacy of Maneuver

Exploiting Automation

Physical Cognitive Balance


A NOVEL OF THE NEXT WORLD WAR
GHOST FLEET
P.W. SINGER AND AUGUST COLE

Complex Conflict

Warfighting Challenges

1) Develop Situational Understanding

2) Shape the Security Environment

3) Conduct Cyber EM and Maintain Comm

4) Ensure Interoperability

5) Enhanced Training to Mission

6) Improved Individual T&E

7) Develop 5D MAGTF

8) Conduct Entry Operations

9) Deploy, Employ, Sustain the Force

10) Employ Combined Arms

11) Naval Operations "At" and From the Sea

12) Conduct Maneuver Warfare

13) Protect the Force

14) MAGTF SOF Integration

Approach "The New Normal"….as Normal…Be Comfortable in Complexity

The Problem to be Solved

In an era in which tensions and conflicts are exacerbated by rapidly proliferating technology, intensifying urbanization and the empowerment of state and non-state actors to prosecute sophisticated agendas contrary to our national interests, how can a downsized/fiscally constrained Marine Corps best meet increased demand from the Geographic Combatant Commanders to:

1) Conduct routine theater security assistance

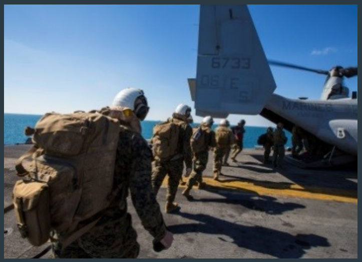
2) Respond effectively to deter or contain a wide range of destabilizing crises

3) Seize and retain the initiative in highly contested littoral environments to ensure the Joint force prevails

Solving this problem will require 4 cornerstone characteristics…

Naval

Expeditionary



Agile

Lethal

Tasks to Change

An Overview

Evolve the MAGTF

- Future Force 2025
- Campaign of Learning
- Commercial Forecasting/Hunter
- 3rd Offset/LRRDPP-GC
- Integration/Compositing
- ARCIC/J7 Engagement

Integrate the Naval Force to Fight At and From the Sea

- Littoral Operations in a Contested Environment (Sea Control and Power Projection)
- Expeditionary Advanced Base (EAB) Operations (Creating Lodgments)

Operate With – and Without – Networked Communications

- Role of Signature in Offense and Defense
- Networking for Rapid / Precise Fires
- Broader Concept of Combined Arms (5D MAGTF)
- Pushing Processing Power and Intelligence to the Tactical Edge (Squad X)

Enhance Our Ability to Maneuver

- Information Warfare (ADC IW)
- Intra-theater Shipping (Amphibs/Alt)
- Infantry and Mobility (CLT)
- Light and Heavy (Compositing)
- Expeditionary Logistics
- DS Integrated Artillery

Exploit the Competence of the Individual Marine

- Seeking High Human Capital (SLDP/Tech Savvy)
- Field vs. Garrison Mentalities
- Developing Marines for Complexity
- Counter Unmanned Systems
- Expeditionary Medicine

Tasks to Change

Near Term Capabilities

Evolve the MAGTF

Amphib Re-Captial
LHA 6 (F-35)
LX(R)
LPD 28

Alternative
Platforms
SPMAGTF

UUNS/Rapid
Prototyping

Information
Warfare
ADC, IW
Cyber

Integrate the Naval Force to Fight At and From the Sea

Naval Board
JFMCC – F-35B
Naval Services
Wargame
Staff Integration

Dawn Blitz15/17:
Alternative
Platforms

Valiant Shield
16/18:
EAB Ops

Bold Alligator
17 DCO URBAN
EX

Link 16 Composite
Tracking
Network
Integrates USMC Ground and Navy Airborne Sensors

Operate With – and Without – Networked Communications

Networking
On-the-Move
(ITV)
(Airborne)

Ground/Air Task
Oriented Radar

Common
Aviation
Command and
Control
System

Terrestrial Wideband
Transmission
Systems
& Data
Distribution
System-Modular

Enhance Our Ability to Maneuver

GCTVS:
ACV
JLTV
AAV SUP/SI
LAV Mod
ITV

Connectors
Recap
SC(X)
R

SSC

High
Mobility
Artillery
Rocket
System

COC & MAGTF
C2
Systems
and
Applications

Exploit the Competence of the Individual Marine

Ranges and
Simulators
(LREC & LVCT)

Infantry
Weapons
M40A6 Sniper Rifle

M4 Realignment

Tactical
Communications
Modernization

Hand Held
Command and
Control

UAS Groups
408 Small UAS
39
Quadcopters

Developing Marines for Complexity

We are improving Marines language, regional expertise and culture (LREC) capabilities, with a particular emphasis on learning to consider cultural factors in planning and decision-making processes at all levels of operations

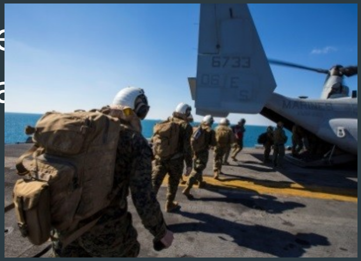
We are seeking the ability to effectively prosecute operations in the cognitive domain…this requires understanding multi-dimensional problems…critical thinking and problem-solving skills

Squad Leader Development Program
LEAD FROM THE FRONT
SQUAD LEADER DEVELOPMENT PROGRAM
http://www.hqmc.marines.mil/ppo/UnitHome/SLDP.aspx

The Future Force: Cornerstones

- ***The Future Force Is a Naval Force***
  - Fight as part of a Naval campaign
  - Integrated C2 and planning
  - Engages cooperatively
  - Creates advantages

- ***The Future Force Is an Expeditionary Force***
  - Immediately deploy–employ–sustain in austere and hostile environme
  - From the widest array of available ships/aircraft/advanced bases/afloa
  - Focused on crisis response and deterrence capabilities
  - Rapidly composite forward



- ***The Future Force Is an Agile Force***
  - Disaggregates to maneuver/elude detection and concentrate for adva
  - Emphasizes critical thinking
  - Reduces its signature and conducts effective decoy and deception
  - Maximizes COTS and drone technologies
  - Accepts the risks of acting quickly on a “good” plan

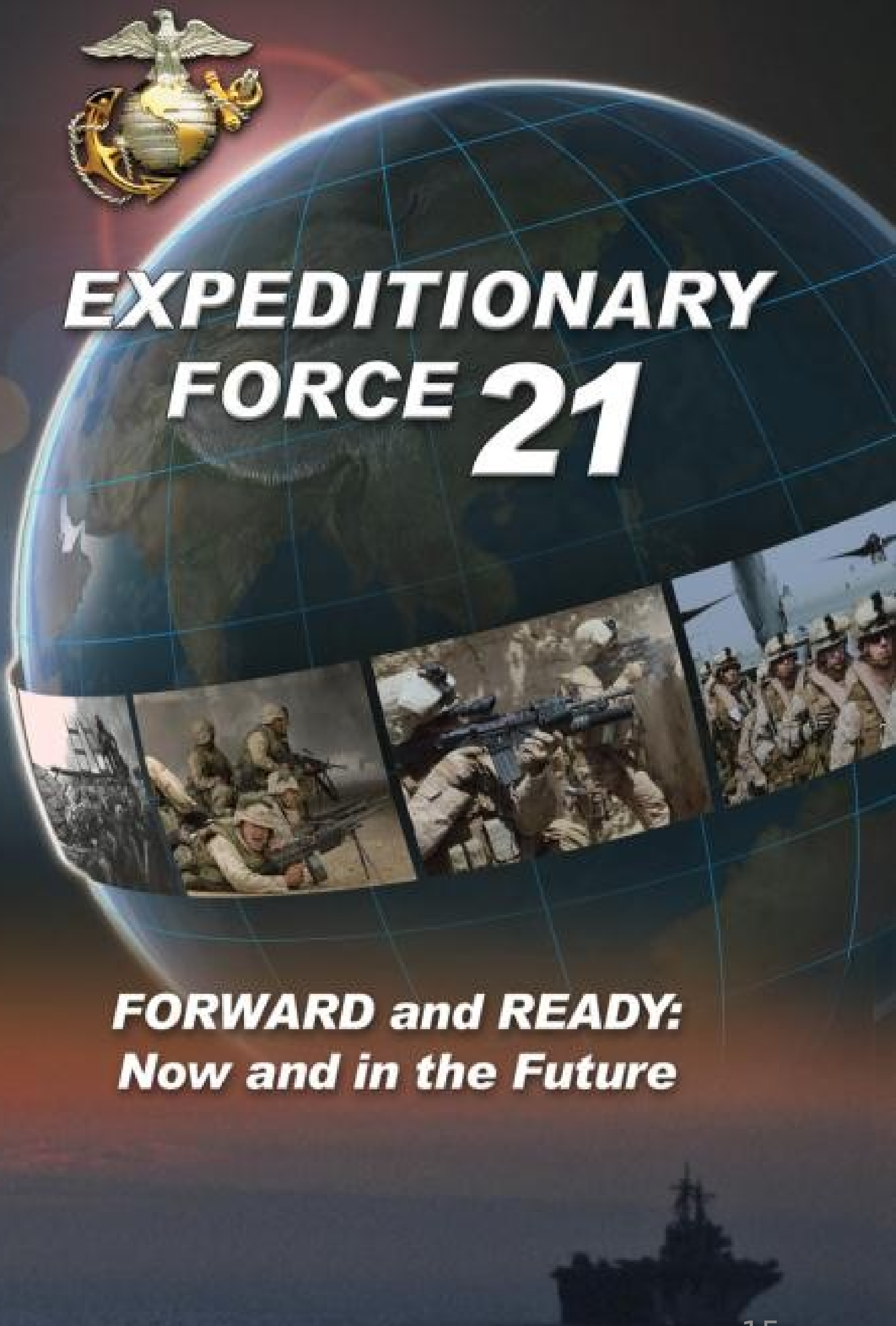
- ***The Future Force Is a Lethal Force***
  - Combines technological advancements with maneuver
  - Supports “distributed lethality” and 5D combined arms
  - Exploits automation and unmanned systems to outcycle adversaries
  - Raises enemy signatures to identify and attack

QUESTIONS

FRAGO 01/2016: Advance to Contact Mission Statement

The U.S. Marine Corps will:

- **Remain the Nation’s Crisis Response force;**
- **Maintain our forward posture and ability to operate in a Joint/Coalition environment;**
- **Serve as a maritime-based expeditionary force that operates across the ROMO in a five domain battlespace;**
- **Project combat power from a variety of naval platforms and land bases;**
- **Consist of a highly trained and educated force operating the most modern and technologically advanced**


EXPEDITIONARY
FORCE 21
FORWARD and READY:
Now and in the Future

BACKUPS

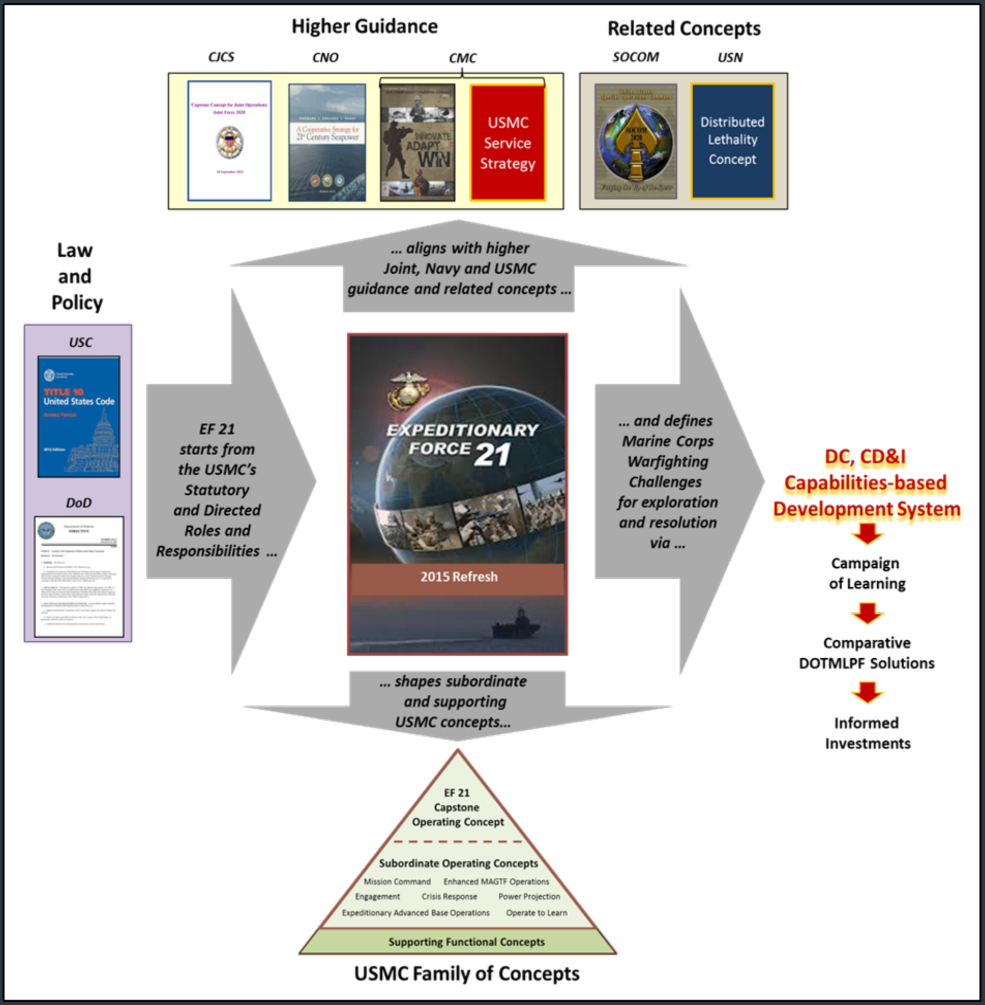
EF21 in Context

What's the Same

- Refining ORG & MEB CONOPS
- 1/3 flexibly distributed forward
- Naval Integration
- How we posture and fight

What's New

- MCIA FOE 2015-2025
- Threat evolution:
    - COTS outpacing
    - Social media
    - Information Warfare
- Posture vice presence
- Refinement posture/fight
- Aggressive innovation across DOTMLPF



Higher Guidance

CJCS

CNO

CMC

USMC Service Strategy

Related Concepts

SOCOM

USN

Distributed Lethality Concept

Law and Policy

USC

DoD

... aligns with higher Joint, Navy and USMC guidance and related concepts ...

EF 21 starts from the USMC's Statutory and Directed Roles and Responsibilities ...

EXPEDITIONARY FORCE 21

2015 Refresh

... and defines Marine Corps Warfighting Challenges for exploration and resolution via ...

DC, CD&I Capabilities-based Development System

Campaign of Learning

Comparative DOTMLPF Solutions

Informed Investments

... shapes subordinate and supporting USMC concepts...

EF 21 Capstone Operating Concept

Subordinate Operating Concepts

Mission Command

Enhanced MAGTF Operations

Engagement

Crisis Response

Power Projection

Expeditionary Advanced Base Operations

Operate to Learn

Supporting Functional Concepts

USMC Family of Concepts

Roles and Responsibilities of the Marine Corps

- Advanced naval bases /lodgments
- Close air support
- Support a naval campaign
- Urban littorals/any clime and place
- Conduct amphibious operations
- Security and stability operations
- Other duties

Forward Presence to Enable Surge Posture

Requires a diverse portfolio to give national authorities immediate responsive options while buying time for distant elements of the Joint force to mobilize and deploy

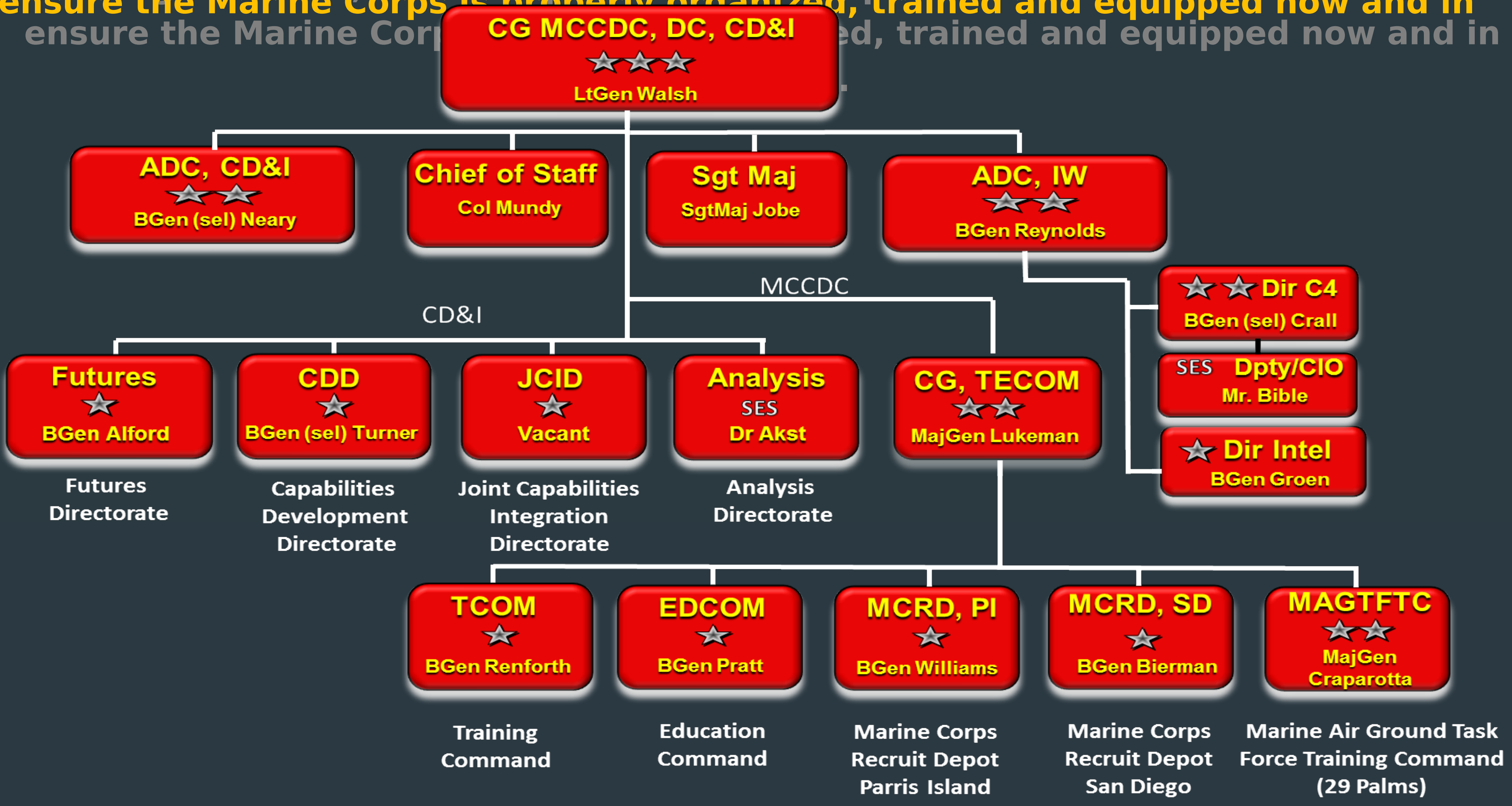
Marine Corps Organization

- **Headquarters, U.S. Marine Corps (HQMC)**
  - Recruiting, Educating, Training, Equipping
- **Supporting Establishment**
  - Bases and Stations
- **Operating Forces**
  - Service Component Commands
  - Marine Air Ground Task Forces (MAGTFs)
  - **Marine Corps Forces Reserve**
  - Chem/Bio Incident Response Force (CBIRF)
  - Marine Corps Security Force Regiment
  - Marine Corps Embassy Security Group
  - Marine Forces Cyber Command
  - Marine Special Operations Command
  - HMX-1 Presidential Support Squadron

Mission & Organizational Chart

Mission: MCCDC and CD&I fully integrates Marine Corps concepts and requirements based warfighting capabilities; including doctrine, organization, training, materiel, leadership and education, personnel and facilities in order to ensure the Marine Corps is properly organized, trained and equipped now and in

Mission: MCCDC and CD&I fully integrates Marine Corps concepts and requirements based warfighting capabilities; including doctrine, organization, training, materiel, leadership and education, personnel and facilities in order to ensure the Marine Cor ed, trained and equipped now and in



CG MCCDC, DC, CD&I
★★★
LtGen Walsh

ADC, CD&I
★★
BGen (sel) Neary

Chief of Staff
Col Mundy

Sgt Maj
SgtMaj Jobe

ADC, IW
★★
BGen Reynolds

★★ **Dir C4**
BGen (sel) Crall

SES **Dpty/CIO**
Mr. Bible

★ **Dir Intel**
BGen Groen

MCCDC

CD&I

Futures
★
BGen Alford

Futures Directorate

CDD
★
BGen (sel) Turner

Capabilities Development Directorate

JCID
★
Vacant

Joint Capabilities Integration Directorate

Analysis
SES
Dr Akst

Analysis Directorate

CG, TECOM
★★
MajGen Lukeman

TCOM
★
BGen Renforth

Training Command

EDCOM
★
BGen Pratt

Education Command

MCRD, PI
★
BGen Williams

Marine Corps Recruit Depot Parris Island

MCRD, SD
★
BGen Bierman

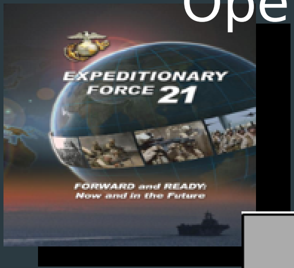
Marine Corps Recruit Depot San Diego

MAGTFTC
★★
MajGen Craparotta

Marine Air Ground Task Force Training Command (29 Palms)

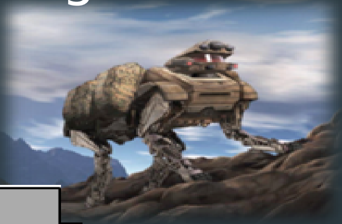
A Quick Look…
At What We Do:

Develop Warfighting Concepts


EXPEDITIONARY FORCE 21
FORWARD and READY: Now and in the Future

Operational Analysis & Wargaming

High Speed
Low Signature Maneuver



Science and Technology and Experimentation

Training and Education

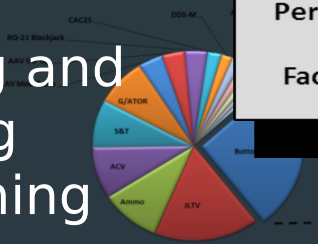
Integrate Across …

Doctrine	Warfighting	OSD	CE
Operations	Training	Joint	GCE
Training	Manpower	CCDR	ACE
Material	Operations	USN	LCE
Leadership	Headquarters	USA	SE
Personnel	Facilities	USAF	Functions
Facilities	Sustainment	Coalition	

Warfighting Requirements

Gap Analysis
Risk A
apability Analysis
Solution Analysis
POM-17
Marine Corps Enterprise Integration Plan
MCEIP
Enterprise Integration Plan

Warfighting and Training Programming



AND…Transition all Planning-to-Programming

4/Cyber

Battlespace

Force Application
AVN CD&I

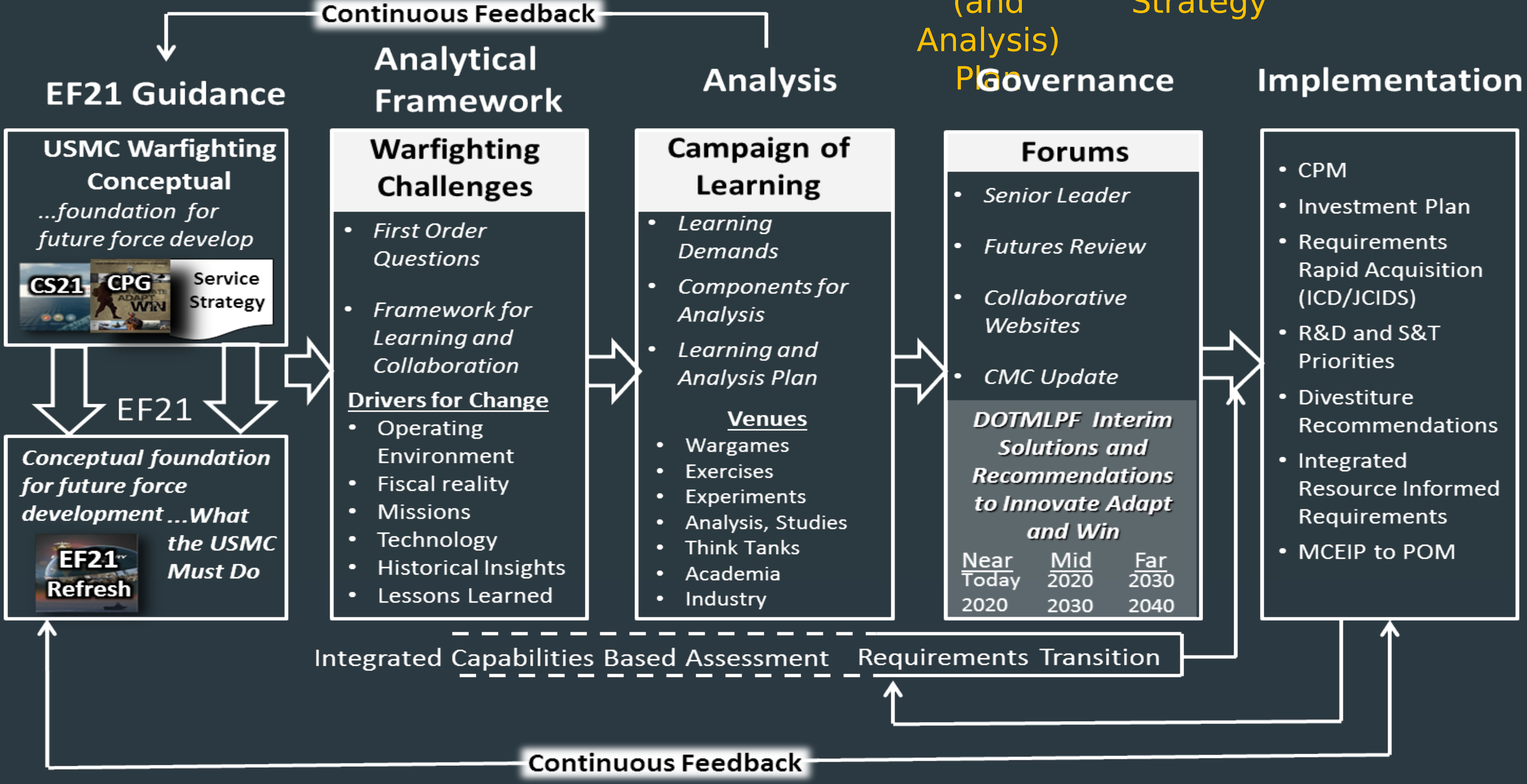
Logistics
I&L

Capability Portfolio Management & Joint Capability Integration

MARFORSTRAT & Information Warfare

Force Development Continuum

Methodology: Problem Statement | Running Estimate | Learning Demands | Integrated Learning (and Analysis) Plan | Integrated Solution Strategy



Continuous Feedback

EF21 Guidance

USMC Warfighting Conceptual
...foundation for future force develop

EF21

Conceptual foundation for future force development ...What the USMC Must Do

Analytical Framework

Warfighting Challenges

- *First Order Questions*
- *Framework for Learning and Collaboration*

Drivers for Change

- Operating Environment
- Fiscal reality
- Missions
- Technology
- Historical Insights
- Lessons Learned

Analysis

Campaign of Learning

- *Learning Demands*
- *Components for Analysis*
- *Learning and Analysis Plan*

Venues

- Wargames
- Exercises
- Experiments
- Analysis, Studies
- Think Tanks
- Academia
- Industry

Governance

Forums

- *Senior Leader*
- *Futures Review*
- *Collaborative Websites*
- *CMC Update*

DOTMLPF Interim Solutions and Recommendations to Innovate Adapt and Win

Near	Mid	Far
Today	2020	2030
2020	2030	2040

Implementation

- CPM
- Investment Plan
- Requirements Rapid Acquisition (ICD/JCIDS)
- R&D and S&T Priorities
- Divestiture Recommendations
- Integrated Resource Informed Requirements
- MCEIP to POM

Integrated Capabilities Based Assessment Requirements Transition

Continuous Feedback

Focused and Sustained Collaboration Across the Marine Corps and Key Stakeholders

3rd Offset LRRDPP-GC

Long-Range Research and Development Planning Program (LRRDPP)

Offset LRRDPP-GC History:

1st Offset: 50s-70s

Battlefield Nukes

Soviet response successive echelons of forces at one single penetration point

(LRRDPP) 1973 second offset precision-guided munitions in 1977

The Problem Vignette: Ukrainian commanders reported to us that, within minutes of coming up on the radio net, they were targeted by concentrated artillery strikes that included cluster munitions, which we're getting rid of; thermobaric warheads, which are absolutely nasty; and top attack submunitions. They jam GPS signals, causing Ukrainian UAVs to drop out of the sky. And they jam proximity fuses on artillery shells, turning them into duds.

3rd Offset Five Building Blocks:

1) Autonomous deep learning systems (grey zone)
2) Human-machine collaboration, decision making (F-35 Helmet)
3) Assisted human operations (Automation or exoskeletons)
4) Advanced human-machine combat teaming (UAVs/Swarming)
5) Network-enabled semi-autonomous weapons (EW and cyber) environment

The five components must ride on the back of a learning network

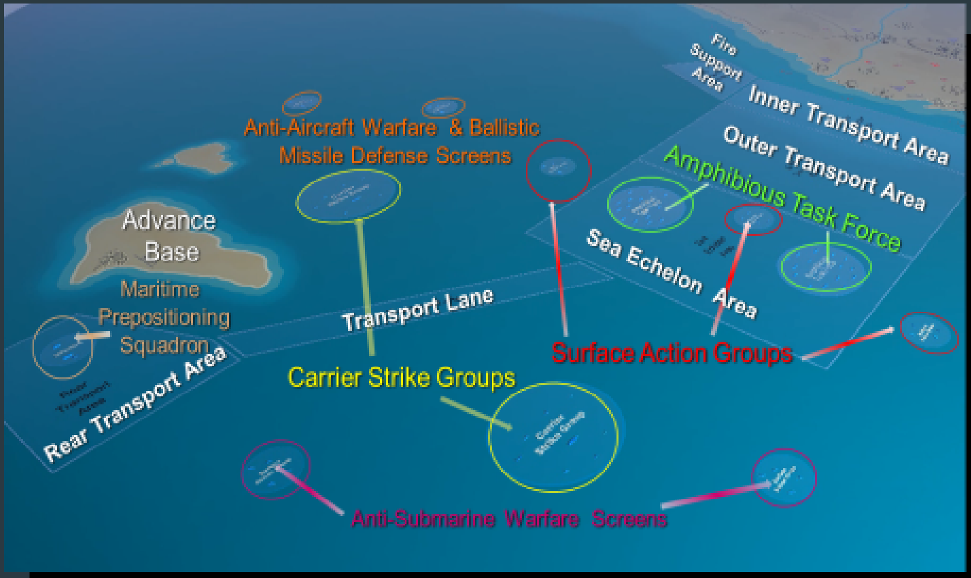
-- Campaign of Learning -

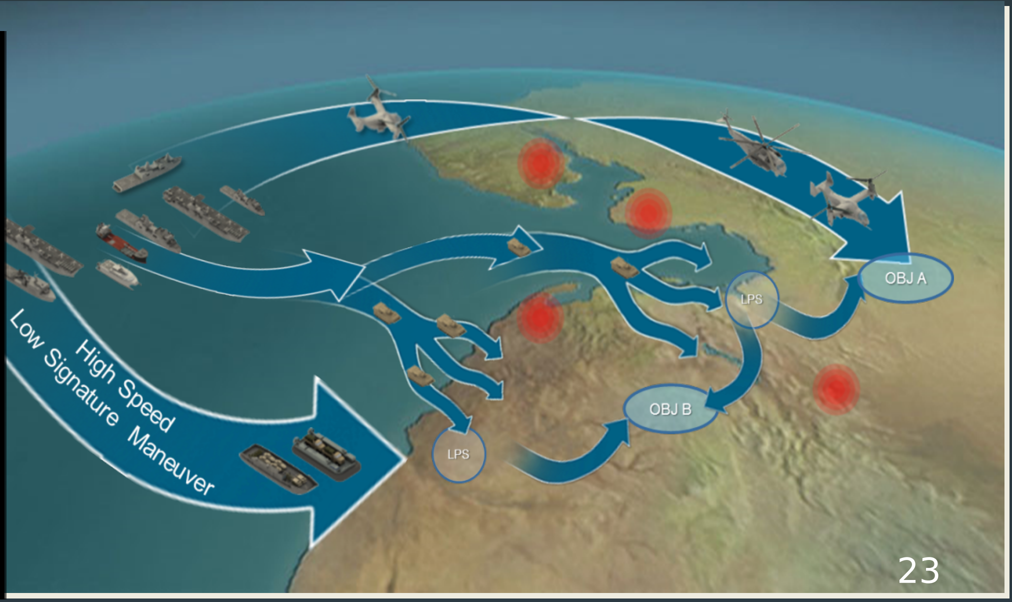
& Leverage Industry & Tech Savvy Youth

Littoral Operations in a Contested Environment

Navy-Marine Corps effort to address how we will achieve local sea control and project power against advanced A2/AD capabilities employed by state and non-state actors

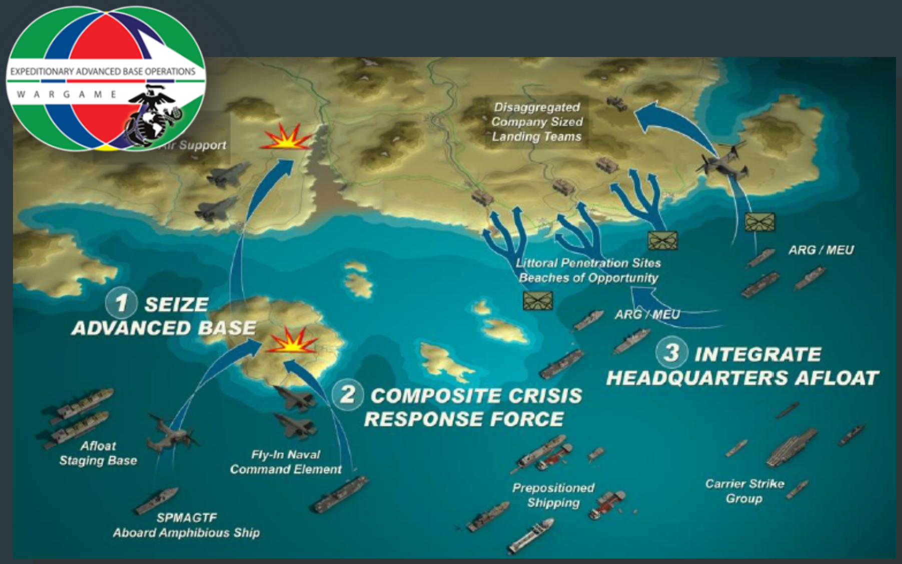
- MCWL chairs a writing team with NWDC
- Problem, central idea, guidance framed
- DIRLAUTH among Naval Board, OPNAV, CD&I, USFFC, & NWDC
- Mar 16: IPR #4 to Naval Board
- Jun 16: Draft to USFFC, MFC, CPF, MFP, OPNAV N3/5, DC CD&I


Fire Support Area
Inner Transport Area
Outer Transport Area
Amphibious Task Force
Anti-Aircraft Warfare & Ballistic Missile Defense Screens
Advance Base
Maritime Prepositioning Squadron
Sea Echelon Area
Transport Lane
Surface Action Groups
Carrier Strike Groups
Rear Transport Area
Anti-Submarine Warfare Screens


High Speed
Low Signature Maneuver
LPS
LPS
OBJ A
OBJ B

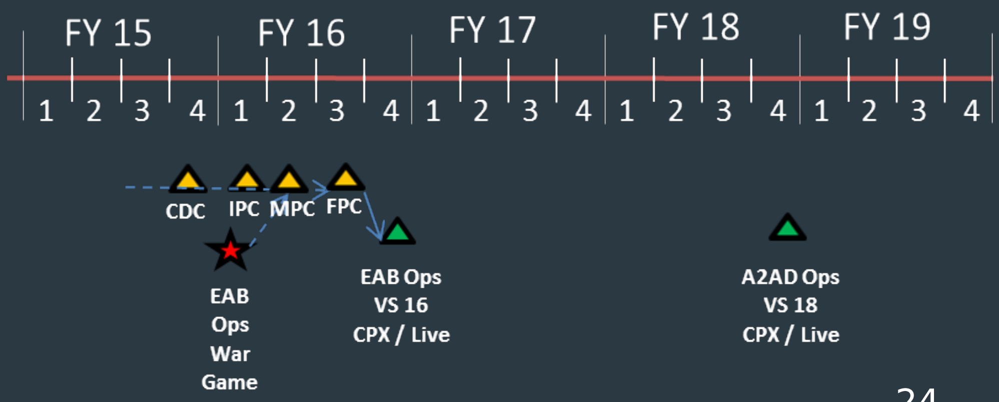
Expeditionary Advanced Base Ops

Described in EF21, “turn the A2/AD table” on an adversary, either prior to or in the midst of conflict, via a network of austere advance bases that complements and supports fleet capabilities


EXPEDITIONARY ADVANCED BASE OPERATIONS
WARGAME
r Support
Disaggregated Company Sized Landing Teams
Littoral Penetration Sites Beaches of Opportunity
ARG / MEU
ARG / MEU
1 SEIZE ADVANCED BASE
2 COMPOSITE CRISIS RESPONSE FORCE
3 INTEGRATE HEADQUARTERS AFLOAT
Afloat Staging Base
Fly-In Naval Command Element
Prepositioned Shipping
Carrier Strike Group
SPMAGTF Aboard Amphibious Ship

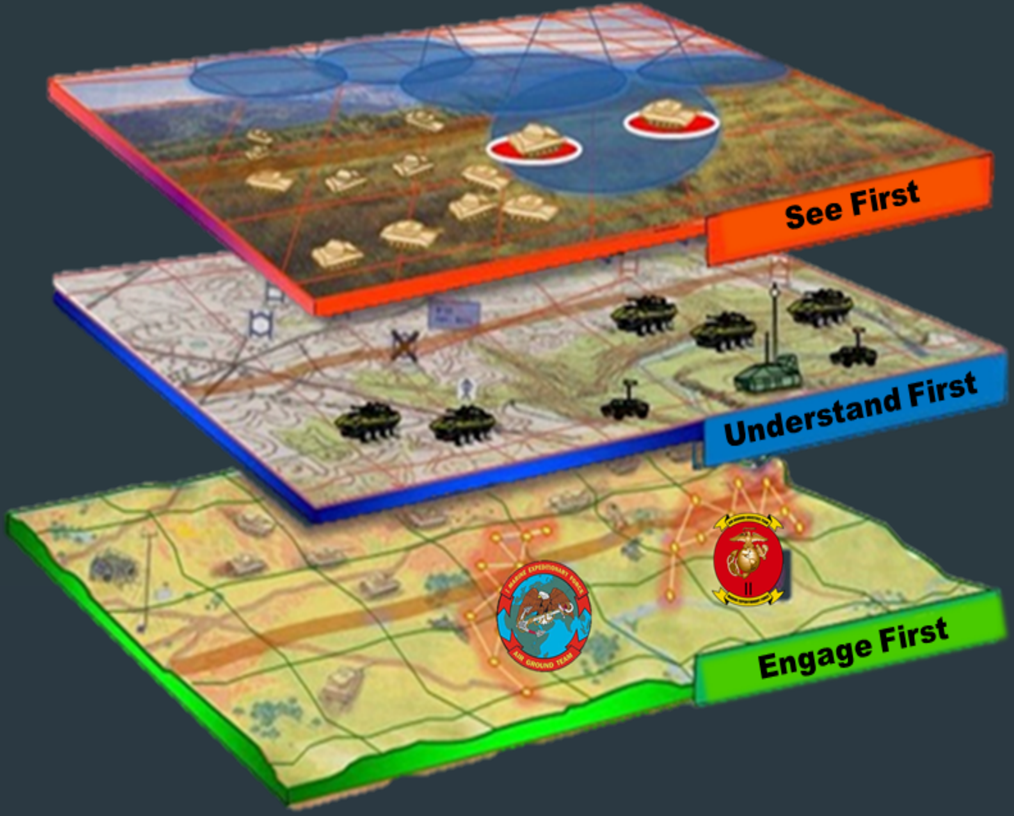
- Highlights adversary range and capacity advantages that must be countered
- Ideas vetted with Navy’s emerging “distributed lethality” concept
- Shaped JAM-GC content
- Embraced by Office of Net Assessment
- Incorporated into MFP & III MEF exercises
- Summer 2016 as *part of Littoral*

Valiant Shield 16 and 18 CPX and live phases we will coordinate with exercise planners to employ HIMARS per the emerging EAB Ops concept

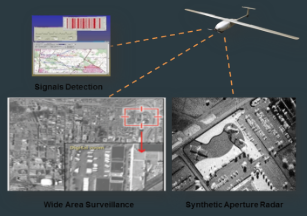

FY 15
FY 16
FY 17
FY 18
FY 19
1 2 3 4 1 2 3 4 1 2 3 4 1 2 3 4 1 2 3 4
CDC
IPC
MPC
FPC
EAB Ops War Game
EAB Ops VS 16 CPX / Live
A2AD Ops VS 18 CPX / Live

Networking for Rapid / Precise Fires

Survivability of small tactical units places a premium on their ability to **see first, understand first and engage first**

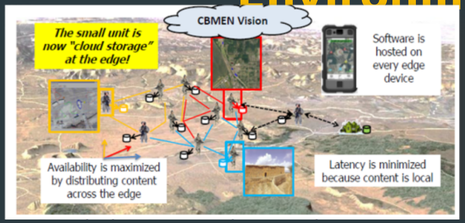

See First
Understand First
Engage First

Sensor Fusion


Signals Detection
Wide Area Surveillance
Synthetic Aperture Radar

Combining sensor and telemetry data from multiple unmanned systems (UxS)

Enhanced Decision Making in Global Environments


CBMEN Vision

The small unit is now "cloud storage" at the edge!

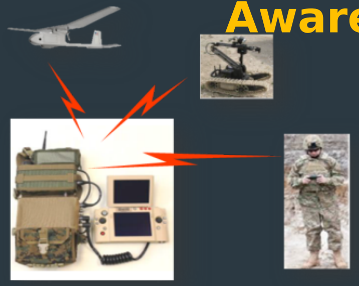
Software is hosted on every edge device

Availability is maximized by distributing content across the edge

Latency is minimized because content is local

Tactically relevant data across an intermittently connected network

Small Unit Leader Situational Awareness Tool

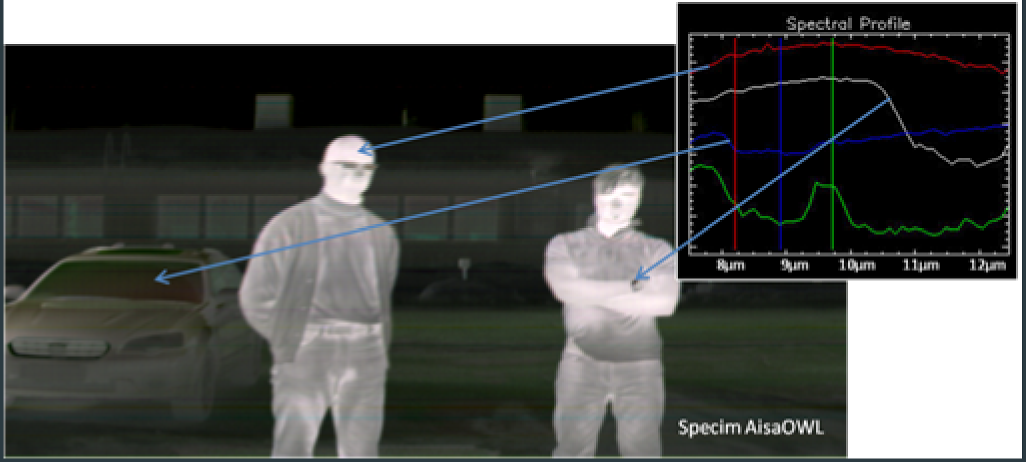


Sensor to shooter platform capable of UxS control and situational awareness for CLT and below

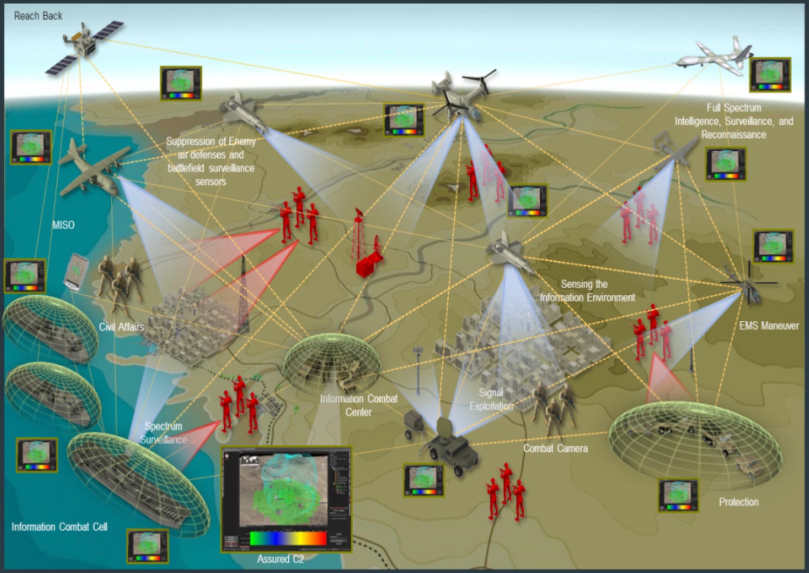
Broader Concept of Combined Arms

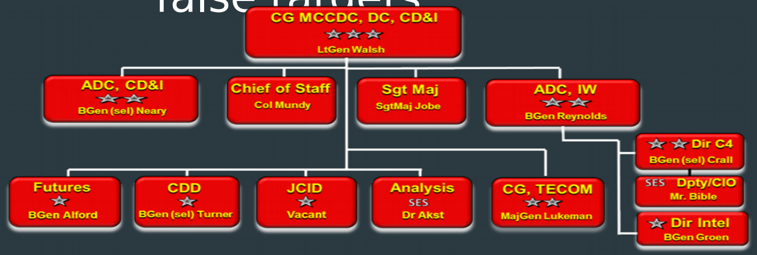
skype
Linked in
foursquare
LiVEJOURNAL
g+
vimeo
YouTube
facebook
g+
Blogger
my
twitter
stagram
flickr
Behance
tumblr.
yelp
Like

Social media to influence the narrative


Spectral Profile
8µm
9µm
10µm
11µm
12µm
Specim AisaOWL

Using the electromagnetic spectrum to create false targets


Reach Back
Suppression of Enemy air defenses and battlefield surveillance sensors
Full Spectrum Intelligence, Surveillance, and Reconnaissance
MISO
Civil Affairs
Sensing the Information Environment
EMS Maneuver
Information Combat Center
Signal Exploitation
Spectrum Surveillance
Combat Camera
Protection
Information Combat Cell
Assured C2



CG MCCDC, DC, CD&I
★★★
LtGen Walsh

ADC, CD&I
★★
BGen (sel) Neary

Chief of Staff
Col Mundy

Sgt Maj
SgtMaj Jobe

ADC, IW
★★
BGen Reynolds

★★ Dir C4
BGen (sel) Crall

SES Dpty/CIO
Mr. Bible

★ Dir Intel
BGen Groen

Futures
★
BGen Alford

CDD
★
BGen (sel) Turner

JCID
★
Vacant

Analysis
SES
Dr Akst

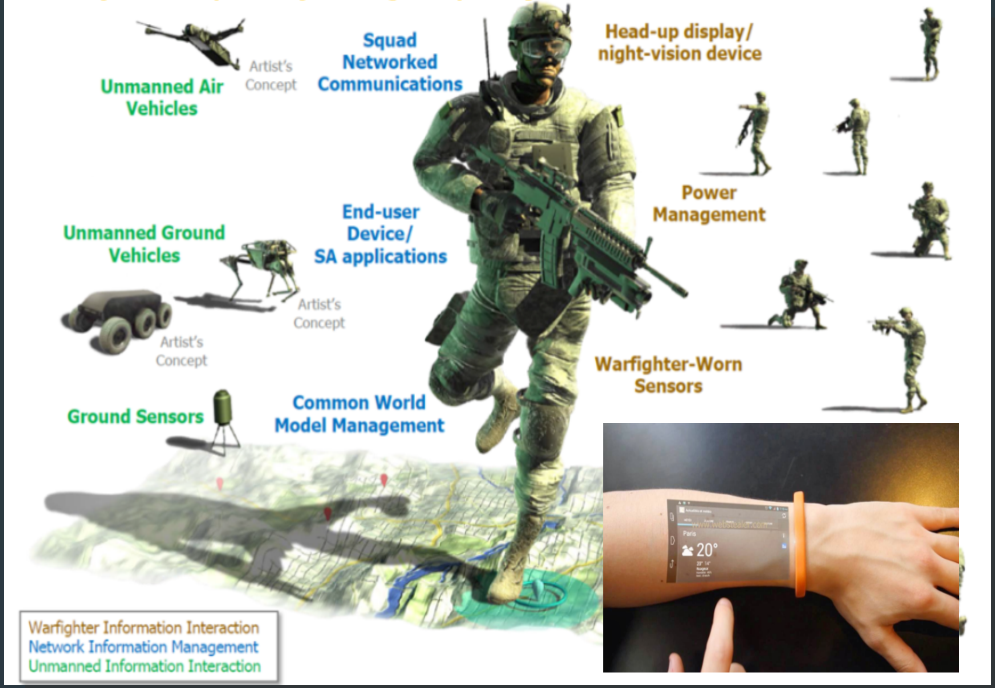
CG, TECOM
★★
MajGen Lukeman

- ADC, IW: baseline capabilities, conduct DOTMLPF-P
- Concept for Operating in the Information Environment
- Cyber: CEWCC Concept
- Virtual cyber range: trains Marines and tests new technologies

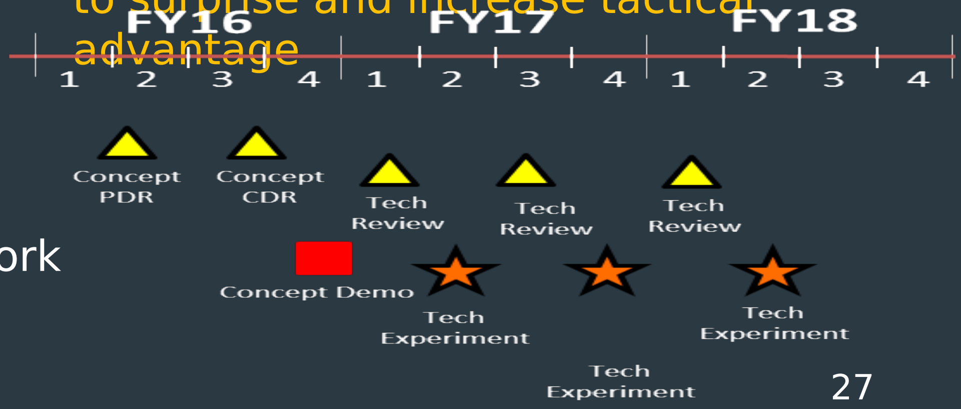
Pushing Processing Power & Intelligence to the Tactical Edge

As miniaturization increases and compact processing power is ubiquitous in multiple devices, the lowest tactical elements can more easily interact directly with non-organic sensors and fires capabilities, simplifying the network

Squad X: *Seeks to make every Marine a sensor and information sharer*

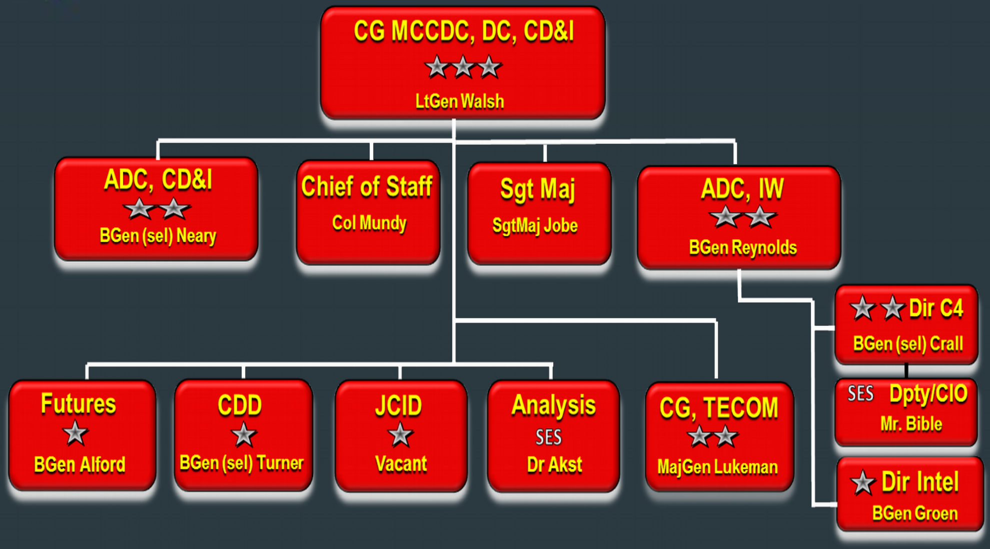

Unmanned Air Vehicles
Artist's Concept
Squad Networked Communications
Head-up display/ night-vision device
Unmanned Ground Vehicles
Artist's Concept
Artist's Concept
End-user Device/ SA applications
Power Management
Warfighter-Worn Sensors
Ground Sensors
Common World Model Management
Warfighter Information Interaction
Network Information Management
Unmanned Information Interaction
Paris
20°

- Individual Marine-worn sensors
- Environment digitization accomplished through real-time, organic, cooperative gathering, fusing and processing of multi-source sensor data by squad members and unmanned systems to build a 3-D world model of the squad's area of operation
- Reduce vulnerability to surprise and increase tactical advantage


FY16
FY17
FY18
1
2
3
4
1
2
3
4
1
2
3
4
Concept PDR
Concept CDR
Tech Review
Tech Review
Tech Review
Concept Demo
Tech Experiment
Tech Experiment
Tech Experiment

Technical Approach: Invest in DARPA effort , work with them to test technologies with Marine forces to determine effectiveness and look to transition to a larger experiment

Information Warfare/ADC IW



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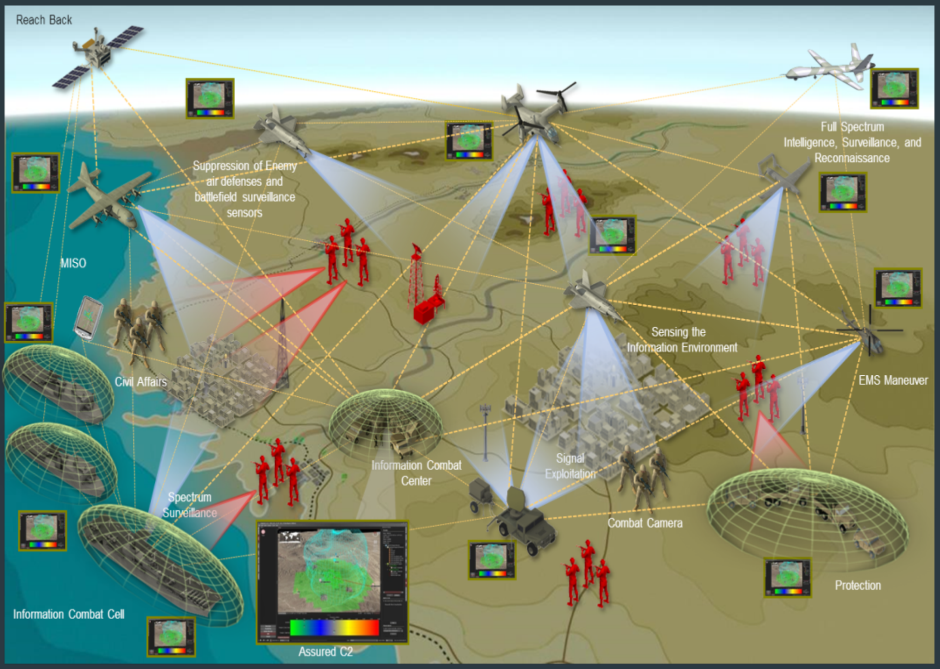
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Suppression of Enemy air defenses and battlefield surveillance sensors
Full Spectrum Intelligence, Surveillance, and Reconnaissance
MISO
Civil Affairs
Sensing the Information Environment
EMS Maneuver
Information Combat Center
Signal Exploitation
Spectrum Surveillance
Combat Camera
Protection
Information Combat Cell
Assured C2

CMC directed establishment of ADC IW in July 2015 to coherently develop and integrate information-related capabilities

Jan EOS approved operating in the Information Environment capability attributes

Marine Corps Concept for Operating in the Information Environment which is now in adjudication following 1-star review

ADC IW will baseline current capabilities, conduct DOTMLPF-P assessment, and in collaboration with operating forces and MAGTF Staff Training Program to fully integrate into force development continuum

Cyber:

Implementing CEWCC Concept principles and tasks in planning (MARADMIN July 2014)

New virtual "cyber range" platform that provides an innovative way of training and qualifying our cyber Marines while at the same time providing an institutional infrastructure to test and develop new

Intra-theater Shipping Options

BLUF: The Marine Corps will continue to work closely with the Navy to implement the 30 year ship building plan and to address the current readiness challenges

L
LSD 41/49 Minimum

Requirement 2 MEB AE 38, with 90% availability

34 to get 30 = 11 LHD/A and 23 LPD/LSD/LX(R)

- Currently 30 with ~70% availability (22 of 30 ships)
- LRS in FY2

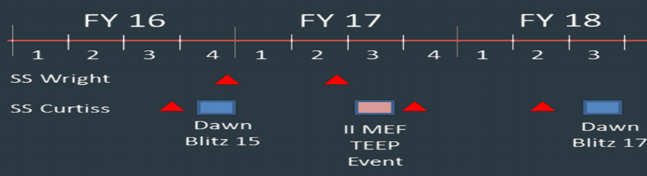
Successes:

- 12th LPD -- LPD 17 hull form for the LX(R) & accelerated funding
- Connector Strategy/Connector Capability Development
- Better utilization of auxiliary platforms MLP, AFSB, JHSV, MPS, MSC
- Upgraded MV-22 capability on MPS
- Integration of F-35B into all L-class ships
- SPMAGTF/MRF-D connection with afloat assets
- Prepositioning CBA enabling better support to OPLAN

Dawn Blitz 17 will examine the T-AVB CLT Ops

T-AVB

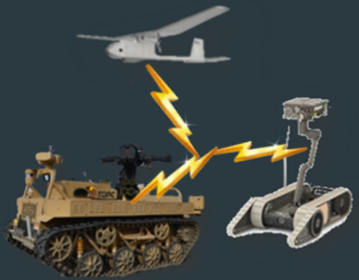
- **Single-ship disaggregated Ops**
- **Mobile facilities (C2, ISR, Med)**
- **Connectors capabilities**
- **Expeditionary logistics**



Infantry and Mobility

Robotic Vehicle Modular & Combat Area Robotic Targeting

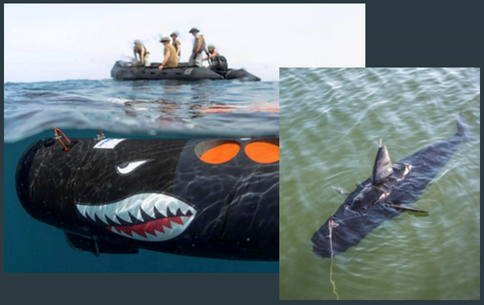
Unmanned ground vehicle platform with ability to rapidly change out payloads for a variety of missions. ...ISR, call for fires and ultimately weapons



Unmanned Tactical Autonomous Control and Collaboration

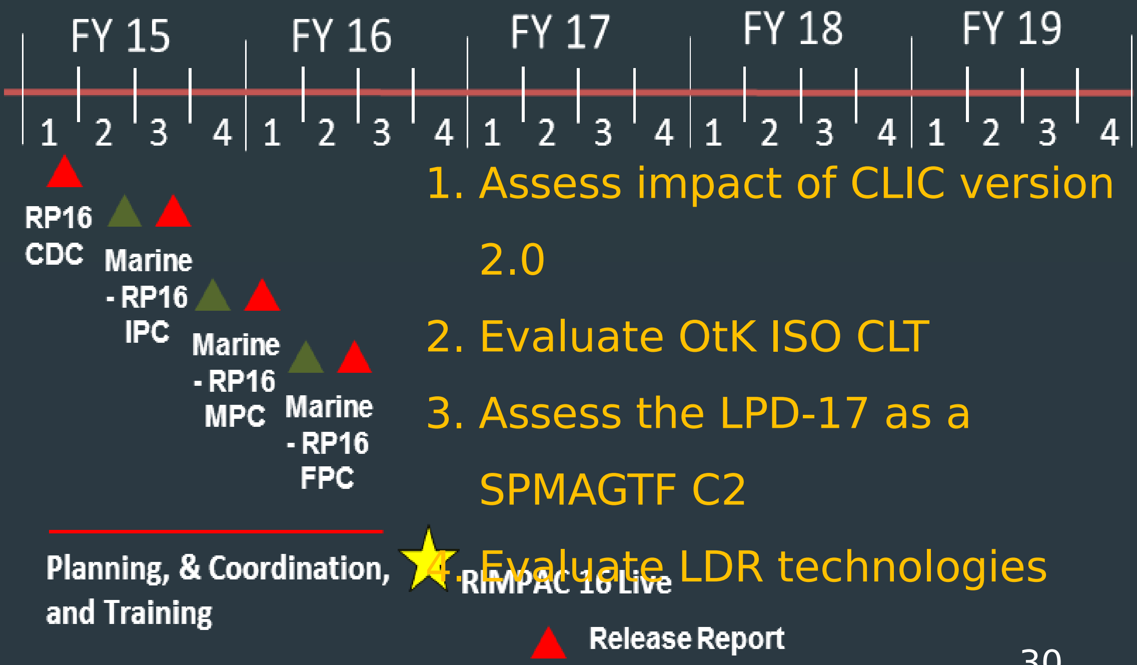
Allows unmanned systems to share information and collaborate through the use of sensors, air and ground vehicles and software

Exoskeleton



Unmanned Sub-surface

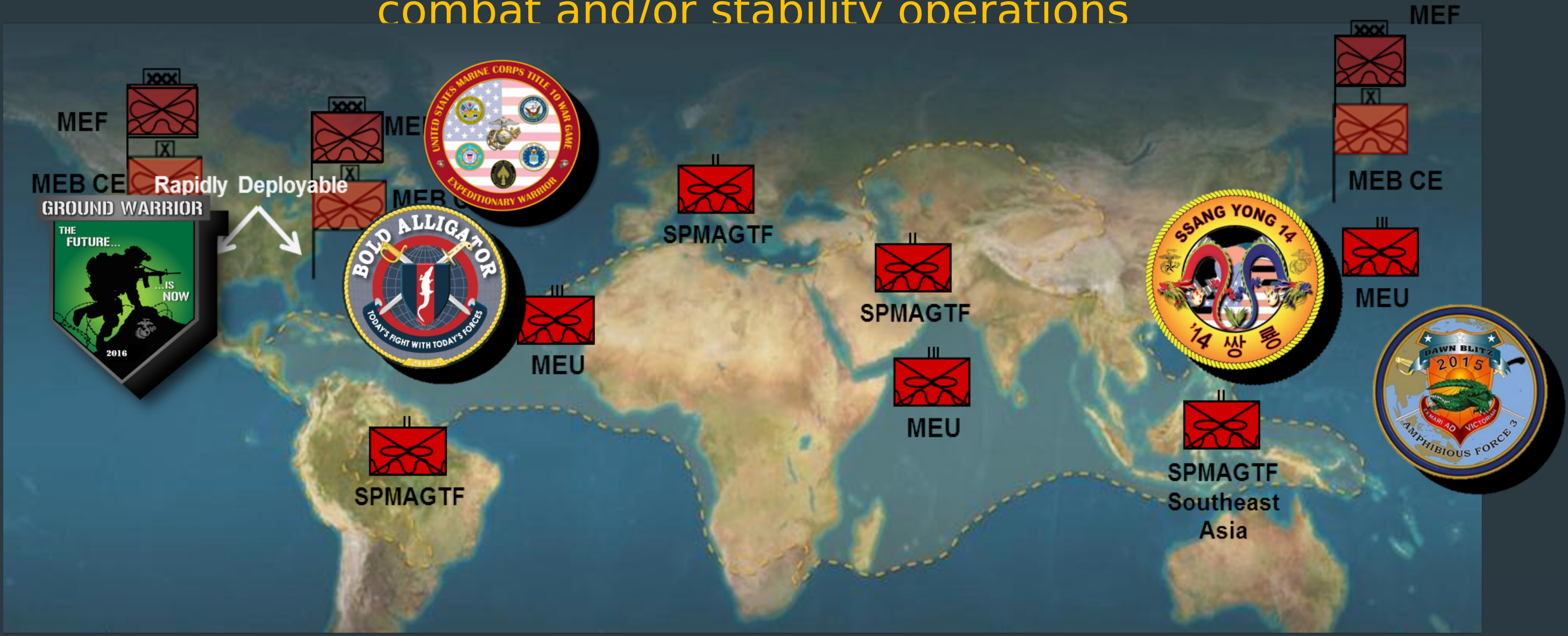
EF 21 CLT Development LOE 2



1. Assess impact of CLIC version 2.0
2. Evaluate OtK ISO CLT
3. Assess the LPD-17 as a SPMAGTF C2
4. Evaluate LDR technologies

Light and Heavy Forces

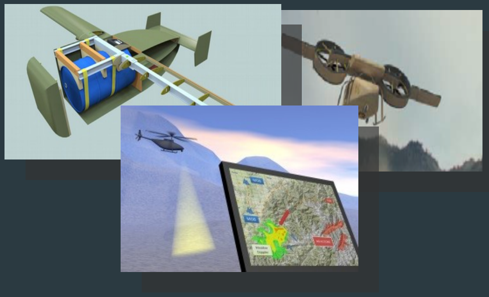
We must have the mobility to concentrate the force when necessary up to a reinforced division-sized force for major combat and/or stability operations


MEF
XXX
X
MEB CE
Rapidly Deployable
GROUND WARRIOR
THE FUTURE... ...IS NOW
2016
XXX
MEF
X
MEB C
UNITED STATES MARINE CORPS TITLE 10 WAR GAME
EXPEDITIONARY WARRIOR
BOLD ALLIGATOR
TODAY'S FIGHT WITH TODAY'S FORCES
MEU
SPMAGTF
SPMAGTF
SPMAGTF
MEU
SSANG YONG 14
'14 쌍룡
SPMAGTF
Southeast Asia
MEF
XXX
X
MEB CE
MEU
DAWN BLITZ 2015
AMPHIBIOUS FORCE 3

The recent large-scale MEB wargames such as EXPEDITIONARY WARRIOR 16, and GROUND WARRIOR 16 and exercises such as BOLD ALLIGATOR, DAWN BLITZ, and SSANG YONG, are an excellent start to achieve this end. We need to continue exercises such as these while simultaneously searching through our Marine and Navy component staffs for more efficiencies and new opportunities to conduct similar exercises

Expeditionary Logistics

Provide logistics enablers to the CLT/SPMAGTF in order to reduce logistics footprints ashore, lighten individual and collective physical and cognitive loads, and enhance sustainability of the CLT/SPMAGTF



Tactical Air Delivery

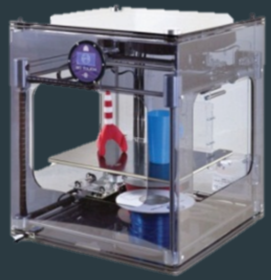
Diverse technologies that support autonomous aerial delivery, ISR and evacuation

Dense Pack Access, Retrieval and Transit

A hybrid/electric powered Container-Lift and Maneuver System (C-LMS), electric powered Autonomous Naval Transport-Large Wheeled Vehicle (ANT-LWV) with applications aboard ships and at bases, stations

Hybrid Energy ITV Trailer

An ITV towable mobile hybrid power generation capability which incorporates current (Solar, Shore or Fossil Fuel) and cutting edge technologies (Fuel Cells or hydrogen gas



Additive Manufacturing 3D Printing

Concept exploration to determine applicable reduction of supply to the SPMAGTF with an organic 3D printing capability

Developing Capabilities

by Integration Division

- Command Element Advocate Board
- Capability Portfolio Management
- Marine Corps Enterprise Integration Plan (MCEIP)
- Requirements Transition
- CBA / MCFDS Process
- Transition Activities
- Balanced approach to resourcing for WIPEB

TFSD

- Authorized Strength Report (ASR) for the 180.5k force

IID

- Distributed Common Ground System/Surface Marine Corps (DCGS-MC)
- UAS (RQ-21) Sensor Payloads
- GBOSS
- Coalition Partner ISR Interoperability
- MAGTF Intelligence Centers (MIC)

FMID

- Ground Combat and Tactical Vehicle Strategy
    - ACV
    - JLTV
    - Family of vehicles
    - Revised Strategy to OSD

SID

- Connectors Way Ahead
- LX (R) (Dock Landing Ship (LSD) replacement) AOA
- Mobile Landing Platform (MLP) IOT&E

LID

- Ground Equipment Review Working Group
- GCSS MC
- Light Fleet/MRAP ISO GCTVS

C2/CEWID

- MAGTF Electronic Warfare Transition Plan
- Cyber/Electronic Warfare Coordination Cell
- Cyber Force Structure Review Group
- Joint Information Environment Implementation
- C2 (Aviation)
- Joint Battle Command-Platform Test and Fielding

FPID

- Ground /Air Task Oriented Radar Development
- C-IED Institutionalization
- Chemical Biological Radiological Nuclear
- Law Enforcement (biometrics, forensics, identification)

SWC/IWID

- Small Wars Manual For The 21st Century, MCDP 1-0.1
- Stability Operations, MCWP
- COIN handbook, MCTP
- IO Gaps in Information Related Capabilities(MISO)
- Riverine Capability

5 Top Urgent Needs & Rapid Prototyping

5 Top Urgent Needs

- **Kuwait MAP Mounted CREW**
  - CVRJ Version 2 upgrade
- **SPMAGTF CR CC Enroute C4 for MV-22**
  - Phase II & III of SPMAGTF CR AF Enroute C4 for KC-130J
- **Integrated Clinical Mgt & Risk Mitigation System**
  - Force Preservation Tool
- **Counter-UAS**
  - AAAB Defense
- **Cyberspace COP/SA System of Systems**
  - Detect and Alert

Emerging Naval Rapid Prototyping, Experimentation and Demonstration Program

Accelerates funding by 2-3 years

Leverages Naval Research and Development Enterprise

UNP can also be used to rapidly develop prototypes i.e. Cargo UAS, Harvest Hawk Armed KC-130J, Nano VTOL UAS, RQ-21 Early Operational Capability

UNP delivers capabilities that are "ready to fight"

Amphibious Ships

BLUF: The Marine Corps will continue to work closely with the Navy to implement the 30 year ship building plan and to address the current readiness challenges

- Require 38 amphibious warships, with 90% operational availability for 2 MEB AE
- DoN agreed fiscally constrained 34 warships, accepting risk in the arrival of CSS
- 34 = 11 LHD/A and 23 LPD/LSD/LX(R) to provide 30 operationally available warships
- Currently 30 ((9) LHA/LHD, (9) LPD 17 and (12) LSD 41/49) with ~70% availibility (22 of 30 ships)
- It will take many years of sustained effort to reduce the risk
- Current Long Range Ship Strategy (LRSS) plan increases amphibious warship inventory to 34 in FY22 and eventually to 38 in FY28, then begins to steadily decrease in FY29 back to 34 by FY38
- This profile sustains amphibious warship inventory risk throughout 29 years of the 30 year LRSS

L
LSD 41/49 Minimum
Tailored Specifications Concept

Successes:

2th LPD -- LPD 17 hull form for the LX(R) & ccelerated procurement funding
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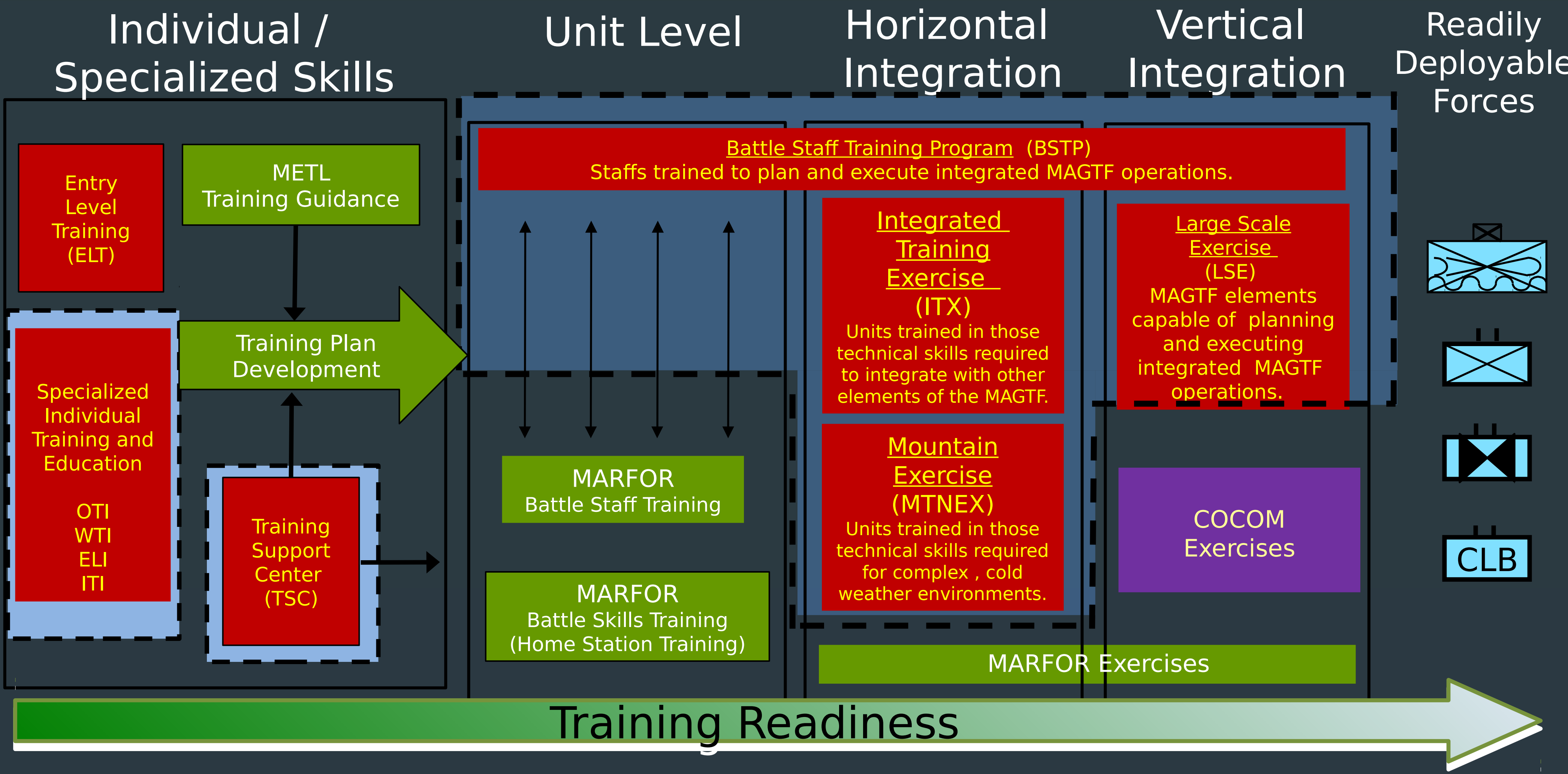
pgraded MV-22 capability on MPS
ntegration of F-35B into all L-class ships
PMAGTF/MRF-D connection with afloat assets
- Prepositioning Capabilities Based Assessment enabling better support to OPLAN response times
- Seabased C2 Working Group

MAGTF Training Program



Individual / Specialized Skills

Unit Level

Horizontal Integration

Vertical Integration

Readily Deployable Forces

Entry Level Training (ELT)

METL Training Guidance

Training Plan Development

Specialized Individual Training and Education

OTI
WTI
ELI
ITI

Training Support Center (TSC)

Battle Staff Training Program (BSTP)
Staffs trained to plan and execute integrated MAGTF operations.

MARFOR Battle Staff Training

MARFOR Battle Skills Training (Home Station Training)

Integrated Training Exercise (ITX)
Units trained in those technical skills required to integrate with other elements of the MAGTF.

Mountain Exercise (MTNEX)
Units trained in those technical skills required for complex, cold weather environments.

Large Scale Exercise (LSE)
MAGTF elements capable of planning and executing integrated MAGTF operations.

COCOM Exercises

MARFOR Exercises

Training Readiness

Legend

🟩 MARFOR Sponsored
🟥 Service Sponsored
🟪 Joint Sponsored
▨ MAGTF Training Program

Cornerstones & Tasks to Change Detailed

Expeditionary

Because… *the future operating environment demands ready expeditionary forces to deal with complex threats in the urban littorals and austere environments*

Russian Aggression

Iranian Intervention in Levant

Narco-Terrorism Syndicates

To Marines, being expeditionary includes an institutional ethos and predisposition that influences every aspect of organization, training, and equipment.

- Immediately able to deploy, employ, and sustain units operating in austere and hostile environments;
- Capable of employing from the widest array of available ships/aircraft;
- Focuses on crisis response and deterrence capabilities that can be readily aggregated to perform larger contingency operations;
- Organized to rapidly composite forward in a manner that achieves speed in deployment and retains cohesion as it combines units to scale;
- Trained and organized to operate from expeditionary advanced bases or afloat platforms.

The Marine Corps must be expeditionary, to fight and win against a variety of threats, enemies, and adversaries

Naval

Because…MAGTFs need to be capable of fighting distributed or concentrated on order to achieve overmatch

Somali Pirates (Joint)

North Korea (multinational)

International Drug Production (Interorganizational)

When crises escalate to conflicts, nothing expands the Nation’s strategic options more than the agile basing, operational flexibility and enduring sustainment offered by the Navy-Marine Corps team performing as a coherent naval force.

- fully partners in naval operations to fight at and from the sea or forward expeditionary sites;
- is integrated into naval component command structures and planning elements;
- engages cooperatively with Navy forces to support maritime security, sea control and power projection in a contested A2AD environment;
- exploits naval capabilities as an integral aspect of the means by which it gains and retains initiative and creates advantage by avoiding enemy strengths, probing for weaknesses, and exploiting opportunities through surprise, speed and agility

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The Marine Corps must be Naval in character to fight at and from the sea

Agile

***Because…**Agility is our best antidote to ambiguity and uncertainty.*

Proliferation of WMD

Cyber Warfare

Dense Urban Terrain

When we decide to exploit an opportunity or press an advantage, our forces must have the form, fit and function on hand to execute the necessary operation. The future force is a Marine Corps that:

- readily disaggregates to maneuver and elude detection and concentrates to prosecute advantage;
- emphasizes critical thinking to understand root causes of complex problems and avoid attacking symptoms;
- reduces its signature and conducts effective decoy and deception operations.
- accepts the risks of acting quickly on a “good” plan in the face of uncertainty as an alternative to waiting for the “perfect” plan.

“perfect” plan.

The Marine Corps must be agile to provide multiple options across multiple domains

Lethal

***Because**... In a combat operation, the Marine Corps must have the capabilities to defeat any foe*

Avoid

Disrupt

Emulate

Expand

We need the lethality to gain overmatch at a critical time and place. We need the lethality to prosecute and conclude combat within a time horizon that accommodates the typically rapid erosion of public and governmental support for military undertakings.

- endows units of every size with some level of capability across the modern, five-domain combined arms suite such that they can prosecute operations distributed across time and space;
- exploits automation and unmanned systems to reduce risk in aggressive operations;
- raises enemy signatures to identify actions and systems.

The Marine Corps must be lethal to defeat elusive, diverse threats

Evolve the MAGTF

Forward Presence

- Proximity to potential AOs
- Netted & purpose-built across ROMO
- Combine wider ashore and at sea forces

Integrating C2

- Distribution, extended operational reach and joint coalition interoperability are driving C2 capability and capacity

MAGTF-SOF Integration

- Will further complementary work (TTPs)
- MAGTF/SOF routinely integrate (OEF/OIF)

Company Landing Teams

- Company teams will take on a larger role
- TO/TE to simultaneously employ 3 CLTs
- Scale should not preclude having capability in all the warfighting functions
- Fluidly disaggregate and

Integrating Command Structures

- Fully integrated into the naval and JTF Commands
- Adapt to C2 structures ..i.e. CWC
- Operational integration of MEB, ESG CSG...Coord w/SOF
- Increase # of Marines assigned to the JFMCC

Integration into the JIIM Force

- Essential force multiplier with budget constraints
- Maintain SC/SFA/BPC with greater TSOC integration
- Focus on C4ISR, IO and network-centric capabilities
- Must leverage COTS communications' technologies
- Wargaming and experimentation is key

Challenges of Compositing

- Planned and unplanned MAGTF forming
- Majority is not organized under the employed CE
- Will focus on maintaining systemic unity of command

Total Force Approach to Readiness

- Reserve forces provide an institutional shock absorber
- We will review sourcing and rotation for all MAGTF elements in coordination with the

Integrate the Naval Force to Fight At and From the Sea

The Marine Corps contributes to CS21 functions (all-domain access; deterrence; sea control; power projection; and maritime security) primarily by rapidly deploying, employing, and sustaining MAGTFs in austere environments to accomplish a wide variety of missions across the range of military operations

MAGTF Role in Sea Control and Power Projection

- Early-arriving MAGTFs will set required conditions
- MAGTF contribution:
  - ISR
  - Force protection
  - Fires and maneuver forces…e.g. VBSS
  - Counter-piracy
- Sea control may require projecting power ashore
  - Defeat land-based threats
  - EABs & Oceanic Outposts
  - Deny key terrain

Creating Lodgments

- “Breakthrough force” for surging Joint forces
- Focus on capabilities required to achieve lodgment conditions
- Army and Marine Corps should maximize efficiencies through close coordination of concepts and equipment

Littoral Operations in a Contested Environment

- 2020-2025 timeframe…NEO to Assault
- Sea control/Power Projection in advance A2/AD
- Littoral maneuver to gain entry as well as enable persistent operations; providing freedom of action within the littoral, and/or to seize, secure and maintain a lodgment
- Creating gaps/seams by location and/or time

Expeditionary Advanced Base Operations

- Complicates adversary targeting
- Manned and unmanned long-range strike, anti-ship, anti-air, and C2 extending systems can be a sea denial outpost

Operate With, and Without, Networked Communications

Role of Signature in Offense and Defense

- Must be able to establish low-signature operating sites i.e. EMCON, decoys, camouflage and deception
- Maintain pace with COTS comm and unmanned systems
- Explore redundant communications systems

Broader Concept of Combined Arms

- 5D MAGTF: Broaden combined arms to incorporate new and emerging capabilities to include non-lethal weapons systems
- Social media to influence the narrative
- Creative use of the electromagnetic spectrum to create false targets, establish virtual "feints" and employ other forms of deception to mask our intent and actions

Networking for Rapid / Precise Fires

- Premium on see first and engage first
- Must harden networks
- Must strive to have persistent sensors for to warning and targeting

Pushing Processing Power to the Tactical Edge

- Fully functional smaller units that benefit from but not require a "central server"
- The lowest tactical elements can more easily interact directly with non-organic sensors and fires capabilities

Networking and Intelligence

- Networked intelligence down to tactical units
- Networks that provide reliable and secure access to information produced, processed and disseminated by a variety of massed and layered sensors, UAS, a robust architecture, and advanced analytical capabilities from national and theater intelligence structures,

Enhance Our Ability to Maneuver

Information Warfare

- In order to out-maneuver must out-think opponents
- Maneuver in informational battlespace at a tempo opponents cannot match

Intra-theater Shipping Options

- Alternative amphibious platforms, JHSV/EPF, and contracted civilian craft, to expand maneuverability
- Find practical near-term solutions that can relax the operational tempo of the amphibious fleet

Infantry and Mobility

- We will employ distributed infantry company teams or smaller units to secure multiple entry points
- With ACV, JLTV, and ITV we can rapidly maneuver from distributed entry points to secure landing sites
- Increase infantry combined arms maneuver advantage with leveraging exoskeleton/foot-mobility
- We must add as quickly as possible unmanned sub-surface, ground and air vehicles (MUM-T)

Light and Heavy Forces: ensure that shaping our capability development to meet the most likely employment scenarios with "lighter" forces does not preclude our ability and capacity to meet the most demanding employment scenario with "heavier" forces

Expeditionary Logistics: We must explore ways and means to provide expeditionary support and sustainment from distances imposed by the range of modern A2/AD threats and dispersed units conducting distributed operations

Exploit the Competence of the Individual Marine

Seeking High Human Capital

As we consider focusing on pushing powerful capabilities down to the tactical echelons, we must adjust how we identify and instill leadership skills and capabilities at the small unit level

Developing Marines for Complexity

We must review our education and training curricula to ensure we are developing Marines with the mental agility and intellectual perspectives to manage uncertainty

Personnel Stability & Unit Cohesion

We will explore ways to improve cohesion by moving away from metrics related to preparedness for the next deployment to an approach that emphasizes consistency of leadership, personnel stability, and sustained readiness in our units

Field vs. Garrison Mentalities

We must critically examine how we give authority and responsibility to our enlisted and officer leadership both in garrison and during operations in the field

Developing Leaders at Every Echelon

We should explore unit structures that rely on highly skilled enlisted operators to offload some of the decisional burden so that leaders can focus on employing their force to defeat an adaptive enemy

Manage Talent/Training Investment

We must track and manage individual talent across the Service and ensure we gain enduring value from a competent, confident and mature workforce